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Hirata et al.

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(54) **VACUUM CLEANING DEVICE**

(71) Applicants: **IIHI Corporation**, Tokyo (JP); **IIHI Machinery and Furnace Co., Ltd.**, Tokyo (JP)

(72) Inventors: **Atsushi Hirata**, Tokyo (JP); **Yasuhiro Shigegaki**, Tokyo (JP); **Tetsuya Hirata**, Tokyo (JP); **Kazuo Miyoshi**, Tokyo (JP); **Yoshiyasu Matsuda**, Tokyo (JP); **Noboru Hiramoto**, Tokyo (JP)

(73) Assignees: **IIHI CORPORATION** (JP); **IIHI MACHINERY AND FURNACE CO., LTD.** (JP)

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(58) **Field of Classification Search**

CPC .. A47L 11/34; A47L 11/4088; A47L 11/4083; A47L 11/4044; A47L 11/30
See application file for complete search history.

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Primary Examiner — Robert Scruggs

(74) *Attorney, Agent, or Firm* — Ostrolenk Faber LLP

(57) **ABSTRACT**

This vacuum cleaning device is provided with: a vapor chamber in which vapor of a hydrocarbon-based cleaning agent is generated; a condensation chamber; a first heat exchanger in which heat exchange between the vapor and a heating medium is carried out; a cleaning chamber in which a workpiece can be cleaned under vacuum by the condensed cleaning agent that has been generated in the condensation chamber; a compressor that adiabatically compresses and further heats the heating medium that was heated by the first heat exchanger; a second heat exchanger that carries out heat exchange between the heating medium heated by the compressor and the hydrocarbon-based cleaning agent in the vapor chamber; and a vacuum unit that further cools the heating medium that has been cooled by the second heat exchanger by forcing vacuum expansion of the heating medium.

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